

Evaluation of fungicides to control powdery mildew on annual strawberry, 2004-05.

On 11 Oct 04, bare root plants from Canada were transplanted into methyl bromide:chloropicrin (98:2)-fumigated soil in six plastic mulched raised beds in an open field. The beds were 28 in wide on 4-ft centers. Each bed contained two staggered rows, 11 in apart, with plants spaced 15 in apart within rows. Transplants were irrigated by overhead sprinkler for 10 days to facilitate establishment, then irrigated and fertilized through drip tape. Treatments were arranged in a randomized complete block design with four blocks, each in a separate bed. Plots were formed by removing plants between successive plots in each of the four central beds. Plots were 9.4 ft long and contained 12 plants. Fungicides were applied with a CO₂ backpack sprayer which delivered 100 gal/A at 40 psi through a two-nozzle wand. Treatments were applied on a 14-day schedule from 17 Nov to 23 Feb (eight applications) except two PrevaM treatments that were applied weekly (15 applications). Foliar disease severity, fruit disease incidence, and yield were determined. Foliar disease severity was evaluated in late Jan by removing one older leaflet/plant and evaluating the abaxial surface for mycelial coverage on a 0 to 7 scale (0 = no growth, 1 = < 1%, 2 = 1 to 10%, 3 = 11 to 25%, 4 = 26 to 50%, 5 = 51 to 75% 6 = 76 to 90% and 7 = > 90%) with the aid of a dissecting microscope. Mean ratings from 12 leaflets/plot were used in the analysis. Fruit were harvested twice weekly from 14 Dec to 25 Feb (22 harvests). Marketable fruit were counted and weighed. Fruit showing conspicuous powdery mildew growth on the achenes and other unmarketable fruit were also enumerated. Fruit disease incidence was obtained by dividing the number of diseased fruit by the total number of marketable and unmarketable fruit and expressed as percent of the total. Disease incidence values were transformed by an arcsine square root function and subjected to two-way analyses of variance. Untransformed values are presented in the table and treatment means were separated by Fisher's protected LSD ($P \leq 0.05$).

The 2004-05 strawberry season was ideal for strawberry production with relatively mild weather and low rainfall. A moderate epidemic of powdery mildew developed in Nov and Dec. Since there was little necrosis of leaves or fruit, the disease rating procedure described above was developed. PrevaM, Quintec, and alternating applications of Pristine and Procure provided moderate to good control of powdery mildew on foliage and fruit, whereas Captan, Captevate, Nova, and Thiram did not significantly reduce powdery mildew. Microthiol Disperss was more effective against fruit infection than foliar infection. Yields of marketable fruit were significantly greater than in the control only with treatments that included Procure or Quintec. Yields in the PrevaM treatments were low despite the fact that this product provided effective control of powdery mildew.

Treatment, rate/A, and frequency ^z	Marketable yield (lb/A)	PM on fruit (% fruit) ^y	PM on foliage (0 – 7 scale) ^x
PrevaM (1.6 qt) + Captan 4L (1.5 qt) 7-day ^w	7,100 f ^v	1.2 a	3.2 a
Quintec 250SC (6 fl oz)	12,000 ab	2.4 ab	3.3 a
PrevaM (1.6 qt) 7-day.....	7,300 ef	2.7 a-c	3.6 ab
PrevaM (1.6 qt) + Procure 50WS (8 oz)	7,100 f	2.7 ab	3.7 ab
Pristine 38WG (23 oz) alt. w/ Procure 50WS (8 oz)	12,300 a	2.6 a-d	4.0 bc
Nova 40W (4 oz) alt. w/ Quintec 250SC (6 fl oz)	12,100 ab	2.3 ab	4.1 b-d
Procure 480SC (8 fl oz)	11,200 a-c	3.2 ab	4.4 cd
Procure 50WS (8 oz) + Thiram 65WSB (4 lb)	12,000 ab	3.8 a-e	4.4 cd
Captan 80WDG (3.5 lb)	9,300 c-e	6.9 ae	4.6 c-e
Microthiol Disperss 80WP (7.5 lbs)	10,200 b-d	2.3 ab	4.6 c-e
Procure 50WS (8 oz)	11,600 ab	4.4 b-e	4.6 d-f
Captevate 68WDG (5.25 lb)	9,000 d-f	6.1 ae	5.1 e-g
Nova 40W (4 oz)	9,300 c-e	7.1 c-e	5.2 fg
Thiram 65WSB (4 lb)	9,500 cd	5.5 b-e	5.2 fg
Control (no fungicides applied)	8,900 d-f	7.9 e	5.2 g

^zTreatments were applied at 14-day intervals from 17 Nov 04 to 23 Feb 05 unless otherwise indicated.

^yFruit with conspicuous powdery mildew (PM) on more than 25% of the achenes were considered diseased.

^xFoliar disease severity was recorded in late January by removing one older leaflet/plant and determining percent mycelial coverage of the abaxial surface on a 0 – 7 scale (0 = no powdery mildew detected, 7 = greater than 90% coverage).

^wA + sign indicates a tank mix of two or more products.

^vMeans within columns followed by the same letter are not significantly different by Fisher's protected LSD ($P \leq 0.05$).